



Homework 3 Karnaugh maps

1. Mark three groups of 1, 2 or 4 squares on the Karnaugh map below so that every square containing a 1 is included in at least one group. [3]

What Boolean expression does it represent?

expression does is

[3]

	00	01	11	10
00		1		
01	1	1	1	1
11	1	1		1
10	1	1		1

2. What Boolean expression is represented by the following Karnaugh map? [2]

AB
CD

	00	01	11	10
00	1	1		
01	1	1		
11		1		
10		1		

Answer:

3. Given the following expression:

$$(A \wedge B \wedge \neg C) \vee (A \wedge \neg B \wedge \neg C) \vee (\neg C \wedge D) \vee (A \wedge C \wedge \neg D)$$

(a) Complete the Karnaugh map below. [4]

(b) Mark the groups. [2]

(b) Hence simplify the expression:

Answer:

[2]

AB
CD

	00	01	11	10
00				
01				
11				
10				

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Unit 8 Boolean algebra



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[Total 16 marks]